

CLAIMS

1. An apparatus for testing samples of a solid material contained in a reactor tube,
said apparatus comprising a holder for said tube, a flow module for generating a
5 carrier fluid flow containing a probe through said tube positioned in said holder, a
magazine for additional tubes, and a conveyor for replacing said tube positioned
in said holder with an additional tube from said magazine.
2. The apparatus of claim 1 wherein said solid material comprises a catalyst or an
10 adsorbent.
3. The apparatus of claim 1 wherein said reactor tube, said holder for said tube, said
magazine for additional tubes, and said conveyor for replacing said tube positioned
15 in said holder with an additional tube from said magazine
comprises an automated thermal desorption unit.
4. The apparatus of claim 1 wherein the flow module further comprises an injector
for injecting a probe and/or additional carrier fluid into the carrier fluid flow.
- 20 5. The apparatus of claim 4 wherein the injector is positioned relatively close to the
holder.
6. The apparatus of claim 1 wherein said flow module comprises a feedline for
establishing fluid communication with a tube that is placed into the holder and
25 wherein the cross-sectional area of the lumen of the feed line is substantially
smaller than the cross-sectional area of the lumen of the tube.
7. The apparatus of claim 1 wherein means are provided for accurately controlling
the temperature of said tube in said holder.

8. The apparatus of claim 1 which further comprises an analysis module for at least partially determining the composition of the reaction products exiting said reactor tube.

5

9. A method of testing a plurality of samples of a solid material contained in a reactor tube by means of an apparatus comprising a holder for a tube, a flow module for generating a carrier fluid flow containing a probe and a magazine for additional tubes, which method comprises placing said tube in said holder, generating a carrier fluid flow through said tube, and replacing said tube with an additional tube from said magazine.

10

10. The method of claim 9 wherein said probe and/or additional carrier fluid is injected into the carrier fluid flow relatively close to said holder.

15

11. The method of claim 9 wherein said reactor tube, said holder, and said magazine comprises an automated thermal desorption unit.

RECORDED IN U.S. PATENT AND TRADEMARK OFFICE